

THE AMERICAN X-RAY JOURNAL.

Devoted to Practical X-Ray Work and Allied Arts and Sciences.

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ELIZABETH FLEISCHMAN, Radiographer. San Francisco, Cal.

The American X-Ray Journal.

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NO. 3.

ORGANIZATION OF THE ROENTGEN SOCIETY OF THE UNITED STATES.

Pursuant to a call by Dr. J. Rudis-Jicinsky of Cedar Rapids, Ia., for a meeting of a number of workers with the x-rays to convene at the office of the American X-Ray Journal, St. Louis, Mo., March 26th, representatives from several States met at 10 a. m., at the above named place and date and effected an organization—the Roentgen Society of the United States.

Monday, March 26, 1900.

Meeting called to order by Dr. Heber Robarts, at 10 a. m., at the office of "The American X-Ray Journal," St. Louis, Mo., States represented: New York, Ohio, Illinois, Missouri, Iowa, Nebraska, Kentucky, California and Texas.

President elected: Dr. Heber Robarts, St. Louis, Mo.

Secretary: Dr. J. Rudis-Jicinsky, Cedar Rapids, Ia.

Constitution formulated by the officers named, read and adopted.

Official name of this association shall be: "The Roentgen Society of the United States."

The preliminary steps necessary in procuring the charter shall be made with the object in view of a national organization. All those wishing to become charter-mem-

bers may do so by sending five dollars annual dues, with the necessary application directly to the secretary of the society. Charter shall be open until the next regular meeting in December, 1900.

Place of the next regular meeting decided upon: New York City, N. Y.

Membership blank shall be published in the March and following numbers of The American X-Ray Journal and all the subscribers of the same may become charter-members without credentials and extra expense, on payment of the annual dues, five dollars, but until December, 1900 only. Remittances should be made by check, draft, registered letter, money or express order, direct to the secretary.

"The American X-Ray Journal" is accepted as the official organ of the Roentgen Society of the United States. Members of this society receive the Journal free.

Mr. Nikola Tesla, of New York, N. Y., inventor eminent in the x-ray work and very active in this branch of science was named the first honorary member of this society and the secretary instructed to announce this fact to him.

The by-laws and all other necessary steps in perfecting the organization of this society shall rest in the hands of officers elected, subject to approval of the society.

About one hundred letters of the men who sympathize and will co-operate with the society, eminent men from all parts of

the country were read and accepted with thanks.

Adopted, that the transactions of this meeting be published in the Journal and so enacted.

J. RUDIS JICINSKY,
Secretary.

St. Louis, Mo., March 26, 1900.

THE ROENTGEN SOCIETY OF THE UNITED STATES.

Application for Membership.

..... 1900.

I hereby make application for membership in the Roentgen Society of the United States.

Signed.....
FULL NAME.

P. O. Address.....

\$5.00 must accompany each application. There is no initiation fee. Send this slip with enclosure to Treasurer,

DR. J. RUDIS JICINSKY,
Cedar Rapids, Iowa.

CONSTITUTION.

ARTICLE 1.

This society shall be known as the Roentgen Society of the United States.

ARTICLE 2.

The object of this society shall be the advancement of the knowledge of practical x-ray work and allied arts and sciences: The promotion of this branch of surgery and medical science, systematic original research, the uniformity of support to the inventive talent and promotion of harmony and fraternity in the professions devoted to this science, the protection of the interests of its members and the promotion of all measures adapted to the practical application of the x-ray for the benefit of the community and physical improvement of man.

ARTICLE 3.

Section 1.—This society shall consist of honorary members, permanent members, members by invitation and corresponding members, who shall be physicians and surgeons, dentists, investigators, authors on x-ray topics, inventors, radio-

graphers, or their assistants in hospitals, military or State institutions, technical electricians, chemists, teachers of chemistry and physics, specialists and experts in electro-technique, qualified by at least one year in experience with radiant matter, its application or therapeutical use.

Section 2.—Permanent members shall be residents of United States. Honorary members and corresponding members, eminent in the x-ray work and active in promoting its interests in foreign lands or home, may be elected as such by a vote of two-thirds of the members present, but not more than three such members shall be elected at any annual session.

Section 3.—Members by invitation shall consist of delegates from corresponding societies or institutes, and of reputable professional men and experts active and prominent in radiographie, who shall be introduced by at least two members present, or by letters signed by two permanent members, when they may receive their appointment by a vote of the society, and shall hold their connection with the society until the close of the annual session at which they were received, with the privilege of participating in all the business of the society except the right of voting.

ARTICLE IV.

The officers of this society shall be a president, first and second vice-presidents secretary, assistant secretary, treasurer and board of trustees. The officers shall be elected annually.

ARTICLE V.

Section 1.—The president shall preside at all meetings of the society, preserve order and decorum, decide questions of order, subject to an appeal to the society. He shall deliver (or if absent, shall furnish to be read) an address on some suitable subject at the opening of the annual meeting, subsequent to his election.

Section 2.—In the absence of the president, the senior vice-president shall act as

president, and perform the duties of his office.

Section 3. The secretary shall keep, or cause to be kept, a correct record of all transactions of the society in a permanent form and publish the same in the official organ of the society, in *The American X Ray Journal*, St. Louis, Mo.; give due notice of the next ensuing annual meeting by sending a notice to each member and in the official organ of the society at least two months before such meeting, notify all members of committees of their appointment and of the duties assigned to them. He shall hold correspondence with other permanently organized medical and scientific societies, serve as a member of the committee of publication, supervise the distribution of the published transactions to all members who have paid the annual assessment, and carefully preserve the archives and unpublished transactions of the society.

Section 4.—The assistant secretary shall aid the secretary in his duties and perform them temporarily when the office is vacated by resignation, removal or death.

Section 5.—The treasurer shall receive and be accountable for all moneys that shall come into his hands by virtue of any of the by-laws of this society, or otherwise, he shall give good and sufficient bonds to the trustees for the safe-keeping and disposal of his trust, and shall make a full report to the society annually.

Section 6.—A Board of Trustees consisting of three members, shall be elected. One member elected each year shall hold office for the term of three years.

The trustees shall hold the bond of the treasurer, and take general supervision of the affairs of the society, not otherwise provided for. At the request of the majority of the members, the president of this board may call special meeting or change the time of holding the annual meeting of the society.

ARTICLE VI.

This society shall hold its regular meet-

ing annually and call meetings as provided by Section V.

ARTICLE VII.

No person shall be received as a delegate nor allow to sit as a permanent member, nor as a member by invitation, who is known as a "quack," or under sentence of expulsion or suspension from any scientific or medical society; or is not in good standing in regard of annual dues with this society.

ARTICLE VIII.

The following standing committees shall be organized at each annual meeting:

A committee of arrangements, of which the assistant secretary shall be a member. They shall make all necessary steps in arrangement for the next meeting.

A committee of publication of which the secretary and treasurer shall be members, to procure the publication of the transactions under the direction of the society. The committee will be expected to use their discretion in publishing only such reports and papers as, after careful examination, it may conclude will be instructive and do credit to the society.

A committee on Necrology, shall collect such facts in regard to the personal history and professional career of its deceased members, report the same to society, which report shall go to the committee on publication.

A committee on conduct, of which the retiring president shall be chairman. They shall investigate and report upon all cases of differences arising between members.

A committee on revision of the constitution and by-laws shall be appointed each year, to whom shall be referred any proposed change or amendments, which must be submitted in writing at the first session of the annual meeting and adopted at last session, if the vote be unanimous; but if not, it must lie over until the next annual meeting.

ARTICLE IX.

Every member of this society, when presenting his credentials, shall pay the treas-

urer the sum of \$5.00 and sign the constitution. Members receive the American X-Ray Journal free. Subscribers of the Journal may become members of the society without credentials, if they are members of medical or other scientific societies and pay \$5.00 dues.

ARTICLE X.

The fiscal year of the Roentgen Society of the United States is from Jan. 1 to Dec. 31. The annual dues for the following fiscal year are payable in advance, and shall be such as fixed by the by-laws, which if allowed to remain unpaid for two years shall cause a forfeiture of permanent membership that can be renewed only upon the recommendation of the committee on conduct.

Long exposures through thick portions of the body veil or fog the picture. M. P. Villard, in a note to the Paris Academy of Science, says that the fluorescence of the surrounding air appears to be the source of the second image and general fog. Prof. Roentgen, fully explained this in his second report on the Phenomenon of the x rays. The particles of air that are so charged, or give off x rays, are capable of casting a shadow of an opaque substance upon the plate from its under surface. It is in this manner that a nail or screw in the table may be seen in a radiogram.

The magnifying action of the x rays is further intensified by having both sides of the glass plate coated with emulsion. This plate should be placed between two fluorescent screens with the crystals in contact with the films. This gives two images and double density and the exposure is shortened to one fourth the time in case of films.

Dr. Hall-Edwards has recently sailed for Capetown, South Africa, as surgical radiographer to the Hospital of the Imperial Yeomanry.

EXCITATION OF THE CROOKE'S TUBE BY THE STATIC MACHINE.

Magnetic Discharges.

BY JOHN T. FITZGERALD, M. D.

CHAPTER IV.

When a metallic conductor is excited by a battery or a dynamo among the different varieties of force made manifest, are two which are inseparable and interdependent. They are electricity and magnetism. So intimately are these twin forces associated, that their duality is frequently forgotten and their diverse phenomena almost inextricably confounded. In the introductory chapters of text-books on electrology, the authors treat exhaustively of, first, magnetism, then electricity. They carefully delineate their diverse properties and functions, while in the subsequent chapters the former variety of force is seldom mentioned and the important role which it plays is usually credited to the action of electricity by induction or influence, as much as to intimate a mysterious or uncertain method of transition from one conductive path to another. If, however, we consider the process called induction as 1st, the formation of a magnetic field around an electrically excited conductor, 2d, the magnetic discharge of a portion of the field onto another placed in juxtaposition or onto the original conductor, causing electrification of the former, or the so-called extra current of the latter, then there can be no objection raised to this otherwise ambiguous terminology.

So, generally, is the action of magnetism ignored by the masses that they credit electricity with wonderful mechanical power. They consider that electricity propels the street cars and automobiles, turns the wheels of many industrial plants, operates various recording apparatus employed in the telegraph and telephone service, also call-bells, enunciators, etc., etc., whereas, it is really magnetism which turns the wheels and moves all of the

levers necessary for the achievement of the mechanical processes enumerated. In our study of the Excitation of the Crooke's Tube by the Static Generator, we will endeavor to (1st) draw the line sharply between these allied forces; (2d) show their interdependence; (3d) determine how they can best be made to co-operate with each other in the production of x-radiance. In differentiating between electricity and magnetism, we find that the former requires a conducting path, whereas the latter permeates the insulation and surrounding medium, the molecules of which are oriented, polarized, or said to be magnetized. The strength of the field thus formed will be in direct proportion to the strength of the current which produced it, but inversely as to the square of the distance from the point of generation. Electrical discharges under high pressure can be made audible, visible and palpable (see previous chapter entitled Convictive Discharges, Feb. issue of the American X-Ray Journal). Magnetic discharges can be made audible as in the telephone, visible as mechanical motion and palpable as heat from molecular magnetic friction.

Electricity decomposes liquids and chemical substances in solution, magnetism does not possess this power. Much is known regarding the therapeutic effects of electricity, but although constantly bathed in magnetism, its effects upon the human body are entirely unknown. Magnetism is undoubtedly one of the world's greatest forces, but the function which it performs therein and thereon remains undiscovered. The electrical units are the volt, the ampere, the watt and the coulomb. The magnetic units are the weber, the gauss and the gilbert. As already stated the two forces are co-operative, but their lines of force always extend at right angles to each other. As a definite amount of one is accompanied by a corresponding amount of the other, electrical currents are measured by the amount of magnetism

which surrounds them, e. g., the voltmeter, the ammeter, the milliammeter and the watt-meter. *A simple electro-magnet consists of a conductor electrically charged and the polarized or magnetized condition of its environment.* When an electrical current is closed the conductor becomes electrically excited, then the molecules of the surrounding medium orient themselves into rings and lines of magnetic force, this hypothetical, superimposed structure reduces the amount of the electrical flow at its onset, for it is formed at the currents expense, after the magnetic field is formed, the electrical flow rises to its maximum. If we then open the circuit the magnetic field will be immediately discharged onto the conductor and raise the electrical flow above its maximum.

When a static machine is in operation, the prime conductors, rods, combs and all metallic accessories are the seat of an electrical current from which magnetic vortices extend out into space until a finite point is reached, where the force becomes so attenuated that it is neutralized and overcome by the earth's magnetic directive action. In the employment of this apparatus for x-ray work we always consider whether its electrical output is proportionate to the capacity of the Crooke's tube to be used for a given examination. If the generator and tube are mutually adapted, the bulb is placed in simple series and the direct, continuous current utilized. The x-ray light thus produced will be perfectly steady and the strain upon the glass bulb negligible. When the apparatus is too feeble in generating power, the undulatory or interrupted current obtained by interposing one or two additional spark gaps is resorted to, that the magnetic discharge at each break of the circuit may reinforce the electrical flow. Under these unfavorable conditions the x-ray light will be irregular, made up of waves and the strain upon the tube considerable. If a magnetic field is

cut by a moving dielectric with a stationary conductor placed on the opposite side, a condition presented by the revolving disks of a static machine, a continuous magnetic discharge or magnetic flux will take place. As the strength of the magnetic field varies inversely as to the square of the distance from its source, it becomes obvious that the intervening spaces between the revolving and the stationary plates should be as slight as possible without actual contact, the glass absolutely true, as thin as is consistent with strength, and their bearings firm, accurate and durable. If the plates are warped or allowed lateral motion a considerable amount of magnetic force may be wasted.

RUFFALO, N. Y.

When it is desirable to intensify a negative or necessary for finer detail, the plate after being washed thoroughly, should be immersed in a solution of mercuric and ammonium chloride, each 20 grains and water one oz. This bleaches the negative white which should be washed again and blackened with 20 drops of ammonia to one oz. of water. These negatives make slower prints but give softer tissues when almost obliterated.

The best screens obtainable are made from platinocyanide of barium. They cannot be used to intensify the x rays, because they fluoresce with a yellow, green light which does not greatly affect ordinary dry plates. The tungstate of calcium fluoresce white and is therefore the best of all fluorescent screens for this purpose. Color-sensitive plates (orthochromatic) may be made to respond to yellow light.

A subscriber writing to us asks for the proper method of using a screen to accelerate the action of the x rays on a sensitive film. He says he has had ten different ways suggested. The proper way is to place the fluorescing surface of the

screen against the sensitive film of the plate. It may be used beneath the plate but there will be some distortion. The screen should be smooth. Rough crystals will destroy finer detail.

Prof. W. O. Horner, of Cleveland, Tenn. uses a "developer" made of one oz. eikonogen in 29 oz. of hot water, and adds one and one-half oz. of sulphite of soda (crystals) and one oz. of carbonate of potash. The Professor speaks of this as being the best thing he has used.

ROENTGEN SOCIETY, LONDON.

At the Roentgen Society, London, March 1st, a paper was read by Mr. J. H. Gardiner—"Measurements of the Absorbability of Roentgen Rays." At the April 5th meeting Dr. Norris Wolfenden and Dr. Forbes Ross are scheduled "The Influence of the X-Rays upon the Growth and Development of Micro-Organisms." For May 3d, Dr. Dell-Pratt Harris is scheduled for a short paper—"On a form of Focus Tube Designed to be Self-heating." Members at all the meetings are invited to bring skiagrams and other objects of interest.

Wilson Noble, Esq., is president and F. Harrison Low, M. B., is honorable secretary of the Roentgen Society. The address of the secretary is 12 Sinclair Gardens, W. London.

Mrs. Dr. Tyler Wheeler Wilcox of 526 Main Street, Joplin, Mo., writes that she has had fruitful results with the static currents in cases of recent burns. Two cases are especially referred to in whom extensive burns from fire had caused very large blisters followed with extreme pain and depression. Within a few hours after the accident the burned surfaces were subjected to the metallic electrode gently rolled over the affected parts. Two minutes was sufficient to stop the pain, and swelling which had already begun, rapidly disappeared. There was no relapse.

Exhibition of Skiagraphs: Report of Cases.*

BY J. T. DUNN, M. D., LOUISVILLE, KY.

At the present time it is not necessary to relate to you that the x-rays are capable of doing serviceable work for the surgeon. It would be only a waste of time for us to discuss the scientific aspect of this wonderful agent. It is a science that is established beyond any doubt, and it only remains for us to avail ourselves of its use. In the light of this discovery damage and mal-practice suits should become a thing of the

effect of the x-rays then cannot be doubted. I exhibit for your inspection, in proof of the foregoing statements, a few photographs.

Fig. 1 is a skiagraph showing a bullet of 32 caliber in the chest. This ball entered in the fourth interspace on the right side of the sternum, passing upward and backward. Immediately after the injury it was probed for, but was not found. That it passed through the lung there is no doubt, as blood was expectorated freely. Patient was sent to the x ray laboratory, and the



FIG. 1. 32-CALIBER BULLET IN THE CHEST.

past to the physician who makes and records photographs of his cases of fractures, dislocations, etc. They are evidence which cannot be denied. It is quite common for me to be consulted by some party who thinks he has a case against some surgeon for mal-practice and wants to prove it by the x-ray. I invariably reject such requests. The attending surgeon himself should have a photograph in his possession showing the bones, joints etc., in proper relation. Then he is master of the situation. The beneficial

ball was located in the trapezius muscle about an inch from the surface. It was removed through a very small incision. The man recovered.

Fig. 2 shows a 22-caliber ball in the foot. This skiagraph was made with the shoe and sock on, which only adds to the wonder of the x-ray work. The bullet was easily removed after being located.

The accompanying shadowgraph (Fig. 38) shows a foreign body located in the esophagus just behind the larynx. The shadowgraph is of a six-year old girl, from Central Indiana, who was sent to me through the kindness of Dr. Woody to

*Read before the Kentucky State Medical Society, 1899.

locate a brass rivet which the child had accidentally swallowed seven months previously.

She came to me very much emaciated, having been unable to swallow any thing except a small quantity of liquids for seven months. She presented a livid appearance about the face and neck. With mouth open, nostrils dilated, head thrown back, and gasping for breath, she presented a pitiful picture.

The history given to me by her father is as follows: "Seven months ago, while she was playing with an old brass rivet which I removed from a threshing machine belt, she swallowed it. It has the cap battered

sleep, for unconscious as she was during her sleeping moments, she was unable to make the necessary effort to keep up respiration.

"At present, and in the last week, her mother or myself have watched her every night, and when she stopped breathing we would arouse her and with her voluntary efforts she was enabled to carry on respiration. Deprived of her rest and nourishment, she has grown quite thin."

With this history and forlorn hope, promising the father to do my best, I set about to relieve the little sufferer, and, if possible, to restore her to health. I placed the patient under the x-rays, and with my

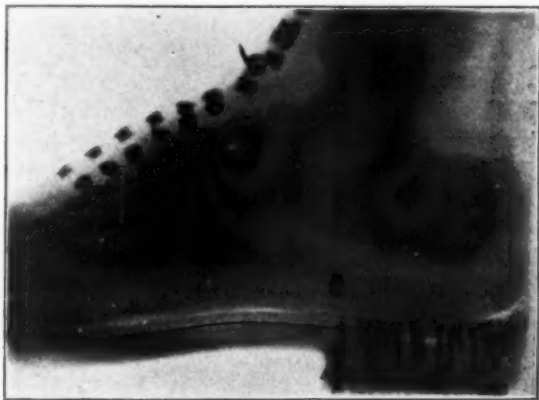


FIG. 2. 22-CALIBER BALL IN THE FOOT. (SHOE ON.)

on the butt, so that it looks very much like a spool. She had some difficulty in swallowing it, making desperate efforts occasionally, and at other times coughing. The family physician was summoned, and, upon examining, failed to locate the foreign body, but said, however, in his opinion the rivet had passed into the stomach and would cause no harm.

"From that time to the present she has had difficulty in swallowing, gradually growing worse. Three months ago she began to experience slight difficulty in breathing, especially at night or in the daytime when she would lie down for a nap. This difficulty also grew worse until it was dangerous to allow her to go to

fluoroscope I searched the stomach and intestines. At a glance I could see, however, that it was not there. Passing from the abdominal region up over the thorax with my fluoroscope, I could see nothing but heart, liver, ribs, and backbone until I reached the cervical region; there I saw located behind the larynx the rivet lying in the position shown in the shadowgraph. Placing my hand upon the neck immediately over the rivet, and making alternate pressure from side to side, I could see the rivet gliding under my finger between the larynx and the cervical vertebrae.

It was now plain what should be done. The diagnosis had been instantly made,

and correctly made beyond the shadow of a doubt. The most unfortunate circumstance was that it had not been made earlier. She was immediately sent to St. Joseph's Infirmary and prepared for the operation. To remove this foreign body with its cutting edges, which were already imbedded in the tissues, by way of the pharynx, with long-bladed forceps was entirely out of the question. It would have

her of this assistance. She took very little chloroform, and passed under it with no excitement. The operation was hurried. Owing to the above reason the anesthetic had to be withdrawn. I proceeded by making an incision an inch and a half long over the anterior border of the sternocleido-mastoid on the left side, the center of which was opposite the foreign body. Dissecting my way carefully, but hurriedly,



FIG. 3. BRASS RIVET IN THE ESOPHAGUS.

done irreparable damage to the esophagus and larynx had I attempted it, and esophagotomy offered the only method of removal.

In a couple of hours all was ready. She was then brought into the operating room, carefully anesthetized by Dr. H. E. Tuley. This part of the procedure gave me considerable concern, because I knew that respiration in her case had to be carried on by voluntary action, and to render her unconscious meant, of course, to deprive

holding the carotid artery and the jugular vein to the outer side of my incision, I reached the outer surface of the esophagus. With the foreign body as my guide, I made an opening into the esophagus as far posteriorly as possible, in order to avoid the recurrent pharyngeal nerve, bringing into view the rivet, which was grasped by forceps and removed.

As I said before, unfortunately this matter had been put off too long, and the child died on the ninth day, having made no

effort at repair, the entire wound being poisoned by the corroded brass.



FIG. 4. BACKWARD DISLOCATION OF THE ULNA AND RADIUS AT THE ELBOW.

This case serves to show the diagnostic value of the rays in dislocations. The accompanying shadowgraph was made from a gentleman who fell from a two-story building in the country, alighting upon his right arm and side, twisting the arm under him. A visiting physician who was present at the time had the young man carried into the house where he examined him, and, according to the history I received from the patient himself, the doctor pronounced it a "backward dislocation and an outward fracture." He also said that the doctor put it back in place, dressed it, and sent him to a neighboring physician for future attention. That was one year before the patient consulted me.

The arm is in complete extension; flexion, supination, and pronation are entirely lost.

I turned the x-rays on, with my fluoroscope could readily see the trouble—a backward dislocation of both bones. He refused to have anything done for it, and it is still in that position. The arm very

materially cripples this man in his business, and if the doctors who had charge of him had been in possession of an x-ray instrument at that time, there would not have been any doubt in their minds as to whether this dislocation had been reduced or not.

What defense could a surgeon make now who would have such a result?



FIG. 5. COLLES' FRACTURE (COMMUNED.)

The accompanying skiagram (Fig. 5) show a comminuted Colles' fracture dressed in cotton and splints, covered over with bandages. This skiagraph was taken about two weeks after the accident, and while the lines of fracture are not as distinct as if taken earlier, they are easily seen to run in all directions, some extending up the radius longitudinally as high as three inches above the joint. It also shows considerable callus in the interosseous space near the joint, which will probably give considerable obstruction to supination and pronation if not absorbed.

This view of the wrist and radius indicates to the surgeon that the bones are in excellent position, and so they are as far as lateral position is concerned; but

take a look at Fig 6, which is a side view of the same hand, and you see a considerable dipping in the dorsal outline of the radius, giving to the wrist, as indicated by



FIG. 6. SIDE VIEW OF COLLES' FRACTURE.

the dorsal surface of the wrist, what might be called a "swayback deformity." If the radius had been arched by a heavy pad upon the anterior splint under the lower end of the upper fragment, and a small pad under the dorsal splint placed upon the upper end of the lower fragment, union would not have taken place in this deformed position. The natural arch in the radius at this point should be kept in mind by the surgeon who attempts to replace the fragments of a fractured radius in this location, and ample padding be used to maintain this natural curve. This faulty position is very likely the cause of this large callus in the interosseous space.

Here again is the practical inability of an excellent surgeon to know the condition of this patient's radius until revealed to him by the x-rays. When the x-rays are consulted in every doubtful case of injury about the wrist and other joints, there will be fewer bad result from such injuries.

Fig. 7 represents the arm of a boy five

years old, who slipped and fell with his arm under him in the bath-tub. He cried that his arm was hurting him, and his mother immediately took him to Dr. Banta, the family physician, who has access to the x-rays. After a thorough examination without the use of the rays, he was unable to make a diagnosis, so a skiagraph was made which distinctly showed an epiphyseal separation at the lower end of the humerus. The diagnosis being thus positively made, an anesthetic was given, the fragments placed in opposition, and a dressing with a hard rubber, right-angle, gutter splint applied.

Three days latter the father came to us with the boy, saying that he had fallen down steps, and he was afraid the bones were out of place again.

To determine the condition of affairs another skiagraph was made, with the splint, cotton, and bandage in position. Sure enough, the epiphyseal fragment had been forced backward as shown in the



FIG. 7. EPIPHYSEAL SEPARATION AT LOWER END OF HUMERUS.

accompanying skiagraph. Under an anesthetic it was again replaced, and a peep through the fluoroscope was sufficient to show that the fragment was in the proper

place. The arm made an uninterrupted recovery.

Fig. 8 shows an ununited fracture of the tibia. This patient came from Tennessee with the following history: A horse had fallen upon his leg, breaking it below the knee; his family physician dressed it for him in plaster-of-Paris, and in three weeks removed the dressing. He was very much surprised to find that no union had taken place. It was now seven months since the accident, and yet there was absolutely no union. The x-rays were turned on his leg, and a peep through the fluoroscope showed

quired into by the patient and his friends, as it is well known that the rays do produce a burn of the skin, and even extending into the deeper structures if not properly applied, and even then, with all the care possible to exert, a case is occasionally encountered in which there seems to be an idiosyncrasy—just as you find people who can not take quinine or morphine.

The patient should understand fully this danger, in the presence of witnesses, before the work is attempted. I have been very fortunate in not producing a single burn. In my private laboratory, and in



FIG. 8. UNUNITED FRACTURE OF TIBIA.

the secret of the whole matter. The fracture was oblique, and the lower fragment had passed around the upper and had not been replaced. Of course union was impossible in this position.

The skiagraph also shows a united fracture four inches below the ununited fracture.

The treatment consisted in converting this simple fracture into a compound, biting off the overlapping ends, drilling and wiring them together.

The question of x-ray burns is a serious one. It is one that is usually closely in-

the x-ray laboratory at the Kentucky School of Medicine, where I have been connected until recently, I have made approximately three hundred exposures, and although I have made some few exposures, thirty minutes long, I have caused no evidence of dermatitis or "burn." In one case I remember making at least ten exposures (hip joint) before succeeding, and they were quite lengthy, yet no trouble ensued. Danger of burning is increased by two things: first, by proximity of the tube to patient; second, by length of exposure. Nikola Tesla, the expert electri-

cian, after investigating the cause and extent of these burns, says, in the *Electrical Review*: "According to the evidence I am obtaining, the tube when in action is emitting a stream of small particles; there are some experiments which seem to indicate that these particles start from the outer wall of the bulb; there are others which prove that there is an actual penetration of the walls, and in case of a thin aluminum window I have now not the least doubt that some of the finely disintegrated cathode matter is actually forced through. I come to the very comforting conclusion that no matter what the rays are ultimately recognized to be, practically all their destructive energy must spend itself on the surface of the body, the internal tissues being in all probability safe, unless the bulb should be placed in very close proximity to the skin, or unless rays of far greater intensity than now producible are generated."

There can be no doubt that deep burns have been produced, but from all reports which I have seen, the cause could be traced to the proximity of the tube to patient, or lengthy exposure. The temptation to place the tube close to the body and make a hurried exposure should be guarded against, for quick results, I believe, mean increased danger of burns. Rapidity should not be our chief aim; we must never, under any circumstances, sacrifice safety to make a record for time. The old adage, "haste makes waste," holds good here.—*The Louisville Monthly Journal of Medicine and Surgery*.

* Half tones by International Journal of Surgery.

Elizabeth Fleischman, who has done so much x-ray work on the Pacific slope, has recently extended her influence into the favorable graces of the United States government. While Surgeon General Sternberg was in San Francisco he visited the x-ray laboratory of Miss Fleischman's and complimented the operator for the excellence of the many pictures she had made.

Miss Fleischman has done some radiographic work for the United States Medical Department, some of which will be reproduced in the Medical History of the War.

Five Weeks and a Six-Mile Walk with Broken Neck.

YONKERS, N. Y., Dec. 8. — A man dragged himself into St. Joseph's Hospital here this afternoon and asked to be admitted. He said he had fallen from a scaffold and had broken his neck. The fall, he said, occurred five weeks ago. Dr. O'Neil, the house surgeon, doubted that the man's neck was broken, but later found the statement was strictly true and x-rays showed the bone pressing against the spinal cord. His left side was paralyzed. The leg on that side was totally useless. The paralyzed side was sensitive to feeling, almost abnormally so, while the side which still retained power of locomotion was without feeling. The way Moriarty walked was to place the cane he carried in advance of his body and then hop forward upon his right foot, the one devoid of feeling.

Moriarty says that after he fell he was taken to his boarding-house, where a physician put his neck and head into a plaster cast. He was unconscious for two weeks, and then he appeared to recover. He suffered no pain, and dismissed the doctor. Recently the pain was intense in his left side until it became paralyzed. He says he now suffers pain in the back of his head. — *Ex.*

Roentgen and Becquerel Rays.

WALTER.

An account of experiments showing that there are considerable differences in the absorption and diffusion of these two types of rays. The strong diffusion of Becquerel rays by air and by bodies of small atomic weight, renders them unfit for surgical use.—*Fortschritte d. Röntgenstrahlen*, III; abstracted in *Lond. Elec.*, Feb. 2.

EPITHELIOMA.

512 11th Street, Oakland, Cal.

January, 1900.

DEAR DOCTOR ROBERTS:— The Epithelioma referred to in recent letters was my own case. Briefly: It commenced in 1860 as if something was crawling near the ala of my nose, right side. Then a scale formed with the same sensation. After a time it would bleed when picked off. This scale continued to grow larger and deeper until it became as large as half a silver dollar, when sixteen years ago I had it cut out. After about five years it returned on the left side of my nose and increased more rapidly than before. I had it cut out the second time eleven years ago. It returned and about seven years ago I had it cut out again. It soon returned, but I have had no surgical work done on it since. It had eaten away about half of my nose, about half of my upper lip and a portion of my left cheek and was nearly up to my left eye, having destroyed a portion of the orbicular muscle.

Having heard something of the action of the x-rays in Lupus I determined to try the experiment on myself. I therefore went to a friend of mine, Dr. Chamberlain of this city, who has an x-ray machine, and explained the matter to him when he consented to try it in my case. After procuring some lead rolled thin for a mask, we cut out enough to allow the Rays to strike the sore and about one fourth of an inch of skin outside the sore. The right side of my nose had to be exposed on account of the disease having invaded the inside of it and had eaten away the cartilaginous portion of the vomer and the mucous surface of the nostril. I directed that the rays should be applied at a distance of four inches for five minutes duration. This was repeated every day for eight days, then ten minutes for four or five days when an exudation made its appearance on the under lip which was inadvertently exposed. It also appeared

on the outside of the nose. The rays were then taken only every other day for ten minutes duration until the fungus bleeding surface had assumed a healthy appearance. The swelling had also disappeared. Then the rays were used for five minutes for a time, and then three minutes. It was then omitted for two weeks because the cicatricial tissue seemed to be sound. It was found to be quite thin and easily broken down in places. The rays were resumed for five minutes every other day.

I commenced the sittings the 12th of October, '99, and I now consider myself practically well, I will probably have the ray applied now and again until the tissues become firmer.

Hoping this will interest you, I am

Very sincerely,

J. M. SELFRIDGE, M. D.

X-RAY WINS \$15,000.

Mr. Benjamin F. Cochran of Philadelphia, obtained a verdict of \$15,000 on the 14th inst., through the instrumentality of the x-rays.

Dr. M. K. Kassabian the expert from the Medico Chirurgical College and hospital was called to the stand and gave the court an interesting and lucid explanation of the x-ray's, and the part they played in the diagnosis of B. F. Cochran's injuries.

Cochran was represented by Robert B. Kelley, and the railway company by William J. Smyth. Seven medical experts testified that Cochran was rapidly going blind as a result of his injuries, which included a fracture of the skull and also a fracture of the spine.

On August 3d last the plaintiff was a passenger in one of the defendant company's cars on Penrose Ferry road, which ran into an open switch at the crossing of the Baltimore and Ohio Railroad tracks. The sudden stopping of the car threw Cochran against another passenger, breaking the latter's leg. The plaintiff's head struck the front woodwork of the car and a perma-

nent injury to his skull was inflicted which, it was testified, might result in an incurable mental disorder.

The plaintiff alleged that the accident was due to carelessness on the part of the motorman who, he contended, was racing with a bicyclist who was going at an unusually high rate of speed.

On the part of the defence it was sought to show that the accident was unavoidable by reason of an electric light at the switch being out.

The case lasted two days. The experts who testified were Dr. William Porter, Dr. Joseph Hearn, Dr. Robert Jones, oculist; Dr. George F. Stevens, Dr. William Saunders, Dr. Mihran Kassabian, the x-ray expert at the Medico-Chirurgical Hospital, and Dr. John Weston.

IMPROVISED A STATIC X-RAY MACHINE.

FRUITA, COL., Feb. 10, 1900.

DR. HEBER ROBERTS, EDITOR AMERICAN X-RAY JOURNAL.

Dear Sir:—Last summer I purchased a 4 plate Toepler machine for therapeutic and x-ray use which worked very satisfactory considering the size of plates, which were 25 and 28 inches. I have recently constructed a machine of my own design having 4 27-inch revolving plates and 4 30-inch stationary. I am pleased to say that it works much better than I expected. The therapeutic effect is excellent. The polarity does not seem to change often. By a little manipulation the polarity can be changed, the machine reversed to suit the operator, providing he has any choice of position. Am doing x-ray work with this machine as a diagnostic assistant to my medical and surgical work.

Yours truly,

J. M. G. BEARD.

Dr. J. M. Haney of Centralia, Ills., has recently installed in his office a ten plate electro-therapeutic and x-ray machine. The doctor is one of the youngest and cer-

tainly the most advanced practitioner in Centralia. He has taken up the most advanced methods for diagnosis and treatment, working in the field with fifteen or twenty older competitors, who "trod along in the same old way." The intelligent people of Centralia have given evidence of their appreciation of Dr. Haney, as is witnessed by his very large paying practice.

International Congress of Medical Electrolology and Radiology.

At the request of the French Society of Electrotherapy and Radiology, the International Congress of Medical Electrolology and Radiology, the initiative of which it has taken, is connected to the International Congress of 1900.

A Commission, which is composed of: Messrs. Weiss, Professor of the University of Paris, President; Apostoli and Oudin, Vice-Presidents; Doumer, Professor at the University of Lille, General Secretary; Moutier, Secretary; Boisseau du Rocher, Treasurer, and of Messrs. Bergonie, Professor at the University of Bordeaux; Bouchacourt, Branly, Professor at the Catholic Institute of Paris; Larat, Radiguet, Villemain, Surgeon of the Hospitals of Paris; has been asked to assure its organization.

This Congress will take place in Paris, from the 27th of July to the 1st of August, 1900.

All inquiries for further information must be forwarded to Prof. E. Doumer, General Secretary, 57 Rue Nicolas-Leblanc, Lille.

Adhesions are to be sent to Dr. Moutier, 11 Rue de Miromesnil, Paris.

PROF. E. DOUMER,
The General Secretary.

Printing by Roentgen Rays.—Le Roux. Electrical World & Engineer.—An article on the Izambard method, which has already been noticed in the Digest. In order to obtain black letters on light ground, the original writing or print is

made with a non-metallic ink which has the property to resist fatty ink and the whole paper is then covered with a fatty metallic ink which adheres to all parts except on the letters. The application of this method for secret letters and for artistic designs is discussed and some notes are given as to priority of the invention. All the details of the method are said to have been improved recently and that the method will be exhibited at the Exposition in Paris.—*L'Elec.*, Dec. 16.

Another "X-Ray" Trick.

A correspondent of the *Scientific American* describes a device of his own, which apparently reproduces instantaneously and neatly the interior of the human body giving to every organ its natural color. The whole operation is performed under the eyes of the bewildered sitter, who watches the x-rays in what seems to be the act of drawing and painting before his eyes his vital organs.

The apparatus looks like the objective tube of a camera, with the plate on which the image is to be produced in full sight of every one. The apparatus is placed opposite the person whose viscera are to be photographed and to heighten the effect a lamp may be solemnly placed behind the sitter. The operator invites every one to look at the white sheet of paper and presses the rubber bulb of the shutter. A colored image appears instantaneously on the paper. The lungs are of a bright red color, the heart is darker, the veins are blue, the stomach and intestines are of a greenish tint; other parts of the body paint themselves in black on the white paper. This sudden apparition generally startles the sitter; but a few remarks on the healthy looks of his lungs will place him at his ease. The photograph is taken out of the apparatus and passed among the spectators.

The secret of the trick is this:

The sheet of paper is previously prepared

by tracing on it the outline of an anatomical drawing, and then painting the several parts with different salts which, in reaction with perchloride of iron, will severally develop the appropriate coloring of each of the principal internal organs. As the solutions are colorless the drawing is invisible when the paper is dry.

The objective tube contains merely a small atomizer filled with a solution of ferric chloride. When pressed, the rubber bulb sends air not, as every spectator believes into a pneumatic shutter, but into the atomizer. As a result a fine and invisible spray of the perchloride of iron solution reaches for a moment the sheet of paper. What follows is easily understood by every student of analytical chemistry.

The reactions between ferric salts on one side, sulfo-cyanide of potassium, ferrocyanide of potassium and tannin on the other side, are among the most sensitive of analytical test, owing to the extraordinary intensity of the red, blue and black colors which originate in these reactions. Hence the instantaneous production of the colored picture.—*Sanitary Era*.

Notice.

R. L. Polk & Co., Detroit, Mich., Publishers of Polk's Medical & Surgical Register of the U. S. and Canada, request that all practicing physicians notify them of removals, newcomers, deaths, physicians retiring from practice, new Medical Societies, hospitals, asylums, sanitariums, and mineral springs in their vicinity. This information will materially aid in revising the Medical & Surgical Register.

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We would also like to call your attention to several features of this book that might otherwise escape your notice. These are the remarkable amount of literary material contained between its covers, the method in which the volume is printed and bound, and its price, which is \$1.00. With the possible exception of some religious books not strictly subject to commercial laws in their production, we do not think there is as cheap a book published. We feel confident that no medical dictionary of double its size and price, or in fact any other book, contains anything like the amount of practical information. This book contains the newly coined words which have grown out of the x-ray discovery.

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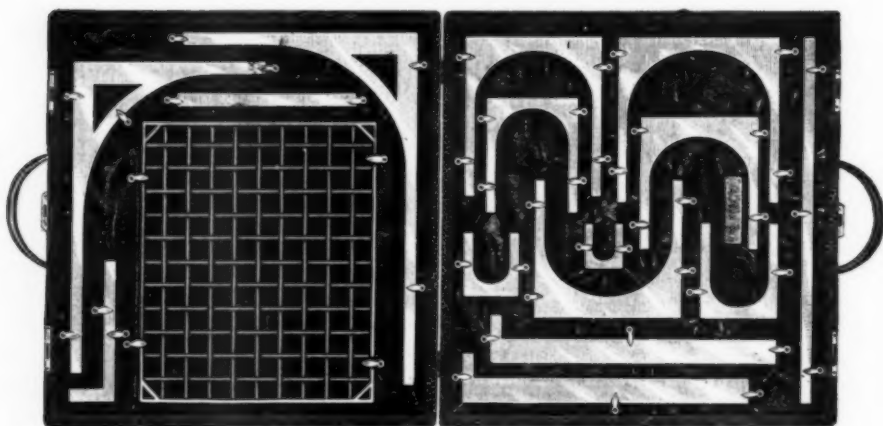
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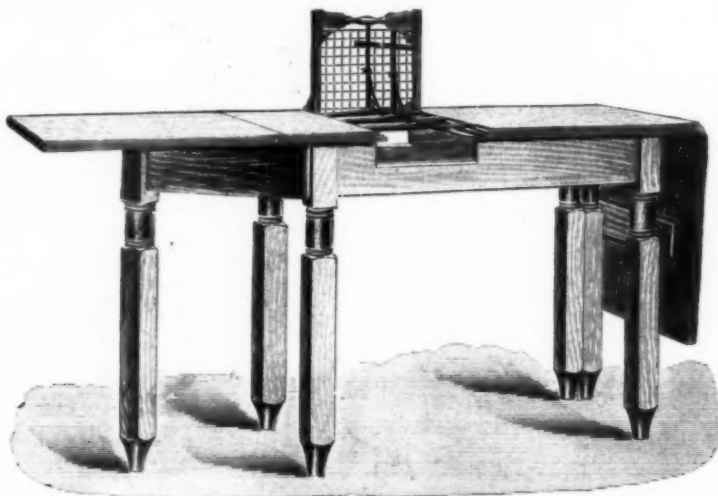
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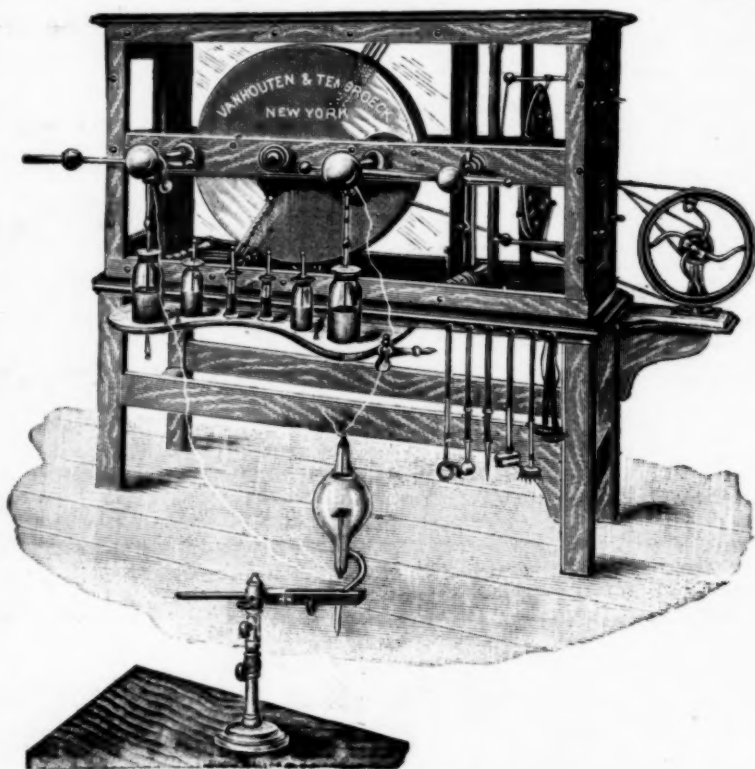
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THE ANTIKAMNIA CHEMICAL COMPANY — ST. LOUIS, U.S.A.

FLUOROSCOPES and FLUORESCENCE SCREENS...



Fluoroscopes with 5x7-inch screens, and larger sizes, are made with detachable screens mounted in light frames so that the screens can be used without the boxes when desired. The 3x4-inch Fluoroscope is designed particularly for Surgeon's use in cases where a small instrument can be used to greater advantage than a larger one.

FRANCIS E. JACKSON, Successor to
AYLSWORTH & JACKSON,
128 Essex Ave., ORANGE, N. J.

SUMMER HEAT: Its Ill Effect Upon Infantile Life.

Whilst it is not contended that summer heat, *per se*, exercises any ill effect upon infantile life, the intense heat of summer, coupled with improper diet and unsanitary surroundings, undoubtedly will increase the mortality among infants. Artificially fed babies especially suffer.

A wise saying of the ancients, *obsta principiis*, has special application here. The importance of cleanliness, appropriate food, and regularity in feeding should be impressed upon the caretaker of the infant.

From the writings of medical practitioners of wide experience in this special field, we have compiled a pamphlet which we designate the "Summer Pamphlet." In it will be found many highly valuable suggestions for the care of infants and children during the heated term, together with various formulæ suggesting treatment for infantile digestive disturbances, all of which tend to show that the base of many successful prescriptions for "summer complaint" is

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LAMBERT PHARMACAL COMPANY,
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FORMULA:

Each fluid drachm contains:

1-8 gr. Proto-Chloride Iron,
1-128 gr. Bichlor. Mercury,
1-280 gr. Chloride Arsenic,
Calisaya Alkaloida! Cordial.

Adjuvant to Iodides.

12 ounce bottle, \$1.00.

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THE GLANDULAR STIMULANT

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Tonic, Stomachic, Anti-Scorbutic, Hematinic and alterative

Indicated in Anæmias, Chlorosis, and as a reconstructive in convalescence from any cause.

Makes Quantity and Quality of Blood.

DOSE—1 or 2 drachms.

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ALTERATIVE, { ANTI-RHEUMATIC.
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Colchicine, 1-20 gr.

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Sodium Salicylate, 10 grs.

Iodic Acid (equal to 7-52 gr. of Iodine in two fluid drachms of Aromatic Cordial).

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Salicylates and Iodides.

In Genito-Urinary Diseases, Oystitis, Incipient, Diabetes, Lithæmia, Urethritis, and all Inflamed Conditions requiring a Non-Irritating Diuretic.

MAIZO-LITHIUM.

A POSITIVE DIURETIC.

Stimulating, yet Non-Irritating.

The chemic union of Maizenic Acid—from Green Corn Silk—with Lithium, resulting in MAIZENATH LITHIUM.

2 grs. to drachm.

DOSE—1 to 2 drachms.

8 ounce bottle, \$1.00

Literature on application.

HENRY PHARMACAL COMPANY, Louisville, Ky.

